

## **Exhibit A**

### **ENGINEERING SCOPE OF WORK**

#### **KING COUNTY INTERNATIONAL AIRPORT (BOEING FIELD) RUNWAY 13L-31R REHABILITATION**

##### **PROJECT OVERVIEW**

The goal of this project is to complete Congressionally mandated safety items for a commercial service airport and rehabilitate a runway for its intended use. These basic items include runway grooving preceded by a minimal depth pavement overlay, the installation of Runway End Identifier Lights (REILs) and the installation of lighted Distance-Remaining signage. Existing runway edge lighting system will not be relocated on this Project.

The Consultant shall not be responsible for obtaining permits such as NPDES; however, the Consultant shall, as part of its design work, advise the County as to the need for and applicability of any permits that would be necessary to complete the construction of the Project. The Consultant will not be responsible for conducting any Biological Assessment as part of its scope of work.

**PROJECT OUTLINE** – as may be further described herein, this Project consists of the following :

- Geotechnical investigation.
- Runway pavement deflection testing and strength evaluation.
- Topographic survey of runway and transitional taxiway areas.
- Evaluation of surface/subsurface drainage and the need for the installation of a pavement subdrain system.
- Bonding improvement (grinding of existing surface) prior to overlay.
- New runway surface profile and cross slopes consistent with FAA criteria and minimum strength requirements.
- Evaluation of strength and condition of connecting Taxiways A4 and A7 (non FAA-eligible).
- Paved transitions into adjacent taxiways.
- Determination (non FAA-eligible) of intersection location of future Taxiway A3.
- Grooving of new runway pavement surface.
- Evaluation of existing runway threshold locations.
- Runway and taxiway pavement striping.
- Evaluation of existing runway electrical systems.
- Installation of Runway End Identifier Lights (REILs).
- Installation of lighted distance-remaining signage.
- Upgrading to electrical vault.

##### **TASK 100 PRELIMINARY ENGINEERING**

The Consultant shall:

a) Review available record data.

b) The Consultant shall finalize the Project design and construction schedule based on the comments of the County and FAA. The parties agree that the schedule will reflect that design (i.e. final plans and specification accepted by the County) will be completed within XXX, from the Effective Date of this contract and with construction to begin within XXX of the County's acceptance of the final construction plans and specifications. The schedule will be a man hours loaded schedule (including all subconsultant and subcontractor hours) with specific milestones when deliverables will be completed and due to the County.

15 Nov Contract Execution  
135 Days

c) After approval of schedule, prepare a preliminary construction and project cost estimate.

d) Prepare grant application based upon construction and project cost estimate.

e) Provide a topographic survey of runway for development of a base map for design which will include:

- Typical 50' longitudinal x 25' transverse grid plus obvious grade breaks within the approximate 3,700' length of the runway and laterally to 150' either side of runway centerline.
- Similar survey grid within transitional areas of connecting taxiways.
- All drainage, utilities, and miscellaneous structures within runway construction limits.
- Develop base map for design.

f) Perform runway pavement deflection testing program to determine existing strength of pavement and to identify any weak areas.

g) Perform necessary geotechnical investigation of area adjacent to the runway for the purpose of identifying ground moisture, exploring any identified weak runway areas, and the determining the CBR value for runway subgrade. The CBR values will influence the pavement overlay design.

h) Provide a written analysis setting forth the Consultant's opinion regarding the runway width.

i) Provide the County with a plan to comply with the DOT DBE program and submitting goals to FAA Civil Rights.

j) Prepare a SEPA checklist for the Project.

Deliverables:

- 1) Report on review of record data.
- 2) Draft and Final scope and schedule
- 3) Preliminary construction and project cost estimate
- 4) Topographic survey/base map

- 5) Test results from deflection testing
- 7) Geotechnical Report
- 8) Runway opinion report
- 9) Project plan to fulfill DBE requirements
- 10) SEPA Checklist

**Task 200 DESIGN ENGINEERING**

The Consultant shall:

a) Conduct pavement life cycle analysis for purposes of comparing the long-term cost of asphalt versus concrete.

b) Develop preliminary plans and contract documents in accordance with all applicable FAA advisory circulars, including but not limited to:

- AC 150/5300-13 Airport Design
- AC 150/5370-2C Construction Phasing and Safety
- AC 150/5320-5B Airport Drainage
- AC 150/5320-6C Pavement Design
- AC 150/5340-1F Marking
- AC 150/5370-10A Lighting

c) Prepare Engineer's Design Report, including:

- Revised and updated scope of project.
- Pavement design for new surfacing of runway (include FAA form 5100-1, Airport Pavement Design).
- List of Advisory Circulars, Design, and Construction Standards.
- Modifications to Standards.
- Phasing and scheduling recommendations.
- Project quantities & construction cost estimates.

d) Prepare intermediate plans (in AutoCAD) and specifications based on the County's construction Contract Documents format, which will be provided to the Consultant. .

e) Conduct a meeting with County and FAA staff to review intermediate plans and specifications, including project safety/phasing/layout plans.

f) Incorporate County and FAA comments from intermediate plans and specifications into final construction Contract Document plans and specifications.

g) Finalize Engineer's Design Report.

h) Furnish the County with 1 set of camera ready final construction Contract Documents plans and specifications and disc of specifications (should be in MS Word at least version 1995)

## Deliverables

- 1) Pavement life cycle analysis report
- 2) Preliminary plans and specifications
- 3) Intermediate plans and specifications
- 4) Final construction Contract Document plans and specifications
- 5) Draft Engineer's Design Report
- 6) Final Engineer's Design Report
- 7) Final construction quantities and cost estimates

## **Task 300 DESIGN SERVICES DURING COCONSTRUCTION**

The Consultant shall:

- a) During bidding period prepare written answers to bidder questions. Prepare all necessary changes to the plans and specifications to be included in addenda, as necessary.
- b) Attend and participate in pre-bid conference at the Airport. Take meeting notes. Distribute notes to County for comment and review. Upon receiving County comments, revise meeting notes and distribute to County Project Representative.
- c) Review bids for responsiveness and bidders' qualifications for responsibility. Make written recommendation to County regarding bids.
- e) Conduct a preconstruction conference. Take meeting notes. Distribute notes to County for comment and review. Upon receiving County comments, revise notes incorporating applicable County comments and changes and distribute to all attendees.
- f) Act as the County's Technical Representative and provide daily, full time inspectors to perform job-site construction inspections and monitor and document construction progress, conformance with schedules, plans, and specifications, and advise the County's Project Representative of defects or deficiencies noted. As part of its inspections responsibilities the Consultant prepare daily inspection reports documenting construction progress including installation of material; number of workers and hours worked, and their work progress; quantities of material used; and equipment on site and used, and all significant conversations, observations and/or situations that effect the progress of the work. The Consultant shall not be responsible for construction means, methods, techniques, sequences, quality of work, However, the Consultant shall be responsible for informing the County' Project Representative as soon as possible, of any defects or deficiencies, delays, contractor's deviation from the Contract Documents, and/or contractor's breach of the construction contract that arise during the construction.

The parties agree that the costs for inspection services provided during construction shall be the same regardless of the phasing of the construction (i.e. whether the work is performed at night, during the day or on an extended day. For only the purpose of determining the lump sum amount for this sub-task, the Consultant estimated the construction would take ninety calendar days, based on a forty-hour work week.) At this time, the Consultant has not determined the exact scheduling of phasing of the construction work. Except as provided below, should the construction of the Project

extend beyond the Contract Time set forth in the construction Contract Documents, the Consultant shall be entitled to additional compensation based on a prorated basis of the lump sum amount, which the parties agree is \$XXX. However, the Consultant shall not be entitled to any additional compensation to perform inspection services, if the reason for the extension of the construction Contract Time is a result of design errors or omissions.

g) Provide quality assurance testing as required by the FAA. (Quality control testing to be provided by construction contractor.)

h) Respond to all RFIs, Change Proposal Requests submitted by the construction contractor and prepare all necessary documentation for the County's review and approval to address such RFI's and Requests.

i) Prepare all necessary documentation to respond to the County's initiated changes to the Contract Documents during construction. .

j) Conduct meetings with construction contractor as necessary but not less than on a weekly basis. The Consultant shall notify the County Project Representative of all scheduled meetings.

k) The Consultant shall respond to all FAA inquiries and provide access to the construction site and construction documents throughout the construction period.

i) Maintain daily logs and prepare weekly FAA inspection reports.

j) Perform regular reviews of construction contractor's as-built to confirm all deviations from original plans are noted.

k) Prepare monthly contractor progress estimates and corresponding and reimbursement requests.

l) Once the construction contractor has informed the County that the work is complete, coordinate and conduct a final project inspection with the County's Project Representative, FAA, and the contractor. Prepare a final punchlist and conduct reinspection to insure completion of punchlist items.

m) Prepare Project Close-out Package, including:

- Consultant's Final project report.
- Final quantities and summaries.
- Record drawings/as-builts, and Consultant's review and acceptance report.
- Payroll record review.

#### Deliverables

- 1) As required, written answers to bidders questions and/or addendum ready changes to plans and specifications
- 2) Written recommendations of construction bids and bidders' qualifications.
- 3) Draft FAA grant application
- 4) Draft and Final pre-bid meeting notes

- 5) Daily logs and weekly reports
- 6) Quality Assurance Testing report/results
- 7) As necessary documentation on RFIs, Change Order Requests by construction contractor or County
- 8) Monthly progress payment estimates and reimbursement requests
- 9) Punchlist
- 10) Close-out Package
- 11) Meeting notes

**PROJECT SHEET LIST**

1. Cover
2. Project Layout Plan
3. Runway Plan & Profile & Drainage (1" = 30' Horizontal)
4. Runway Plan & Profile & Drainage (1" = 30' Horizontal)
5. Runway Plan & Profile & Drainage (1" = 30' Horizontal)
6. Runway Plan & Profile & Drainage (1" = 30' Horizontal)
7. Runway/Taxiway Transition Plan & Profile
8. Runway/Taxiway Transition Plan & Profile
9. Runway/Taxiway Transition Plan & Profile
10. Runway/Taxiway Transition Plan & Profile
11. Runway/Taxiway Transition Plan & Profile
12. Runway Pavement Sections
13. Taxiway Pavement Sections
14. Runway Striping Plan & Details
15. Electrical Plans
16. Electrical Plans
17. Electrical Plans
18. Electrical Plans
19. Electrical Vault Upgrading
20. Electrical Details
21. Safety and Phasing Plan

AIRPORT: King County International Airport (Boeing Field)  
 PROJECT: Runway 13L-31R Rehabilitation  
 CLIENT: King County  
 JOB NUMBER: 23-00-009  
 DATE: 7/14/00 Revised 9/18/00

	PROJECT	SENIOR	DESIGN	SE	SURVE	2-MAN	WORD		
	PRNPAL	ENGR	ENGR	DESIGNE	TECH	SURVE	PROC.	TOTAL	PROJECT
PROJECT TASK	\$48.71	\$35.94	\$21.49	\$24.75	\$19.96	\$40.00	\$19.96	HRS	COST

# PRELIMINARY DESIGN

## DIRECT SALARY:

Attend Scoping Meeting	4	4	4	0	0	0	0	12	\$417
Attend Pre-Design Meeting	4	4	4	0	0	0	0	12	\$417
Prelim. Const. Cost Estimate	0	8	0	0	0	0	0	8	\$288
<del>Grant Application</del>	<del>0</del>	<del>8</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>8</del>	<del>\$288</del>
Review Existing Site Data	1	2	8	0	0	0	0	11	\$291
Topographic Survey	1	15	0	0	40	60	0	116	\$3,784
Geotechnical Investigation Coord	0	0	4	0	0	0	0	4	\$86
Deflection Testing Coord.	0	4	0	0	0	0	0	4	\$144
DBE Program/Goals	1	1	12	0	0	0	0	14	\$341
SEPA Checklist	1	0	16	0	0	0	0	17	\$391
Direct Labor	12	44	48	0	40	60	0	204	\$6,375

Overhead - Percentage of Direct Labor 177% \$11,284  
 Fixed Fee - Percentage of Direct Labor Plus Overhead 15% \$2,649

**Subtotal - Labor, Overhead, Fixed Fee** **\$20,308**

## EXPENSES:

Computers:	0	Hours @	\$15	per hr.	(Data Collector)	\$0
	0	Hours @	\$12	per hr.	(Soft Desk)	\$0
Travel:	Cost/Unit	Trips	Miles			
Mileage	\$0.40	12	60			\$288
Misc. Expenses:						
Fax						\$5
Aerial Photo						\$150
Telephone						\$10
Postage						\$10
Printing						\$10
Processing Fee						\$28

**Subtotal - Expenses** **\$501**

## SUBCONSULTANTS:

PacRim - Geotechnical Investigation	\$5,500
Pavement Engineers - Deflection Testing	\$4,940
Handling Fee	\$1,566

**Subtotal - Subconsultants** **\$12,006**

**TOTAL PRELIMINARY DESIGN** (Lump Sum) **\$32,815**

AIRPORT: King County International Airport (Boeing Field)  
 PROJECT: Runway 13L-31R Rehabilitation  
 CLIENT: King County  
 JOB NUMBER: 23-00-009  
 DATE: 7/14/00 Revised 9/18/00

SHEET	PROJECT	SENIOR	DESIGN	SE	SURVE	CADD	WORD		
	PRNPAL	ENGR	ENGR	DESIGNE	TECH	OPER.	PROC.	TOTAL	PROJECT
# SHEET & TASK DESCRIPTION	\$46.71	\$35.94	\$21.49	\$24.75	\$19.96	\$19.96	\$19.96	HRS	COST

#### DESIGN ENGINEERING

##### DIRECT SALARY:

Life Cycle Cost Analysis	1	4	8	0	0	0	0	13	\$362
Pavement Bonding Analysis	4	8	2	0	0	0	0	14	\$517
Plan Sheets:									
1 Cover	0	1	4	0	0	6	0	11	\$242
2 Proj Layout Plan	1	2	8	2	0	20	0	33	\$739
3 Runway Plan & Profile & Drainage	1	4	8	8	0	20	0	41	\$960
4 Runway Plan & Profile & Drainage	1	4	8	8	0	20	0	41	\$960
5 Runway Plan & Profile & Drainage	1	4	8	8	0	20	0	41	\$960
6 Runway Plan & Profile & Drainage	1	4	8	8	0	20	0	41	\$960
7 RW/TW Transition Plan & Profile	1	2	8	4	0	20	0	35	\$789
8 RW/TW Transition Plan & Profile	1	2	8	4	0	20	0	35	\$789
9 RW/TW Transition Plan & Profile	1	2	8	4	0	20	0	35	\$789
10 RW/TW Transition Plan & Profile	1	2	8	4	0	20	0	35	\$789
11 RW/TW Transition Plan & Profile	1	2	8	4	0	20	0	35	\$789
12 Runway Pavement Sections	2	8	8	4	0	20	0	42	\$1,051
13 Taxiway Pavement Sections	1	8	8	4	0	20	0	41	\$1,004
14 RW Striping Plan & Details	1	2	8	8	0	20	0	39	\$888
15 Electrical Plans	1	4	2	0	0	2	0	9	\$273
16 Electrical Plans	1	4	2	0	0	2	0	9	\$273
17 Electrical Plans	1	4	2	0	0	2	0	9	\$273
18 Electrical Plans	1	4	2	0	0	2	0	9	\$273
19 Electrical Vault Upgrading	1	4	2	0	0	2	0	9	\$273
20 Electrical Details	1	4	2	0	0	2	0	9	\$273
21 Safety & Phasing Plan	4	10	16	4	0	20	0	54	\$1,388
<del>Permits/Letter Report</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>\$0</del>
Pavement Design	0	16	0	0	0	0	0	16	\$575
Draft/Final Engineer's Design Rep	2	10	20	0	0	0	8	40	\$1,042
3 Review/ Coordination Meetings	8	12	12	8	0	0	0	40	\$1,261
Incorporate Review Comments	0	4	8	8	0	10	0	30	\$713
Construction Management Plan	1	4	10	0	0	0	0	15	\$405
Specifications	1	30	30	0	0	0	0	61	\$1,770
Quantities/Cost Estimates	2	8	10	20	0	0	0	40	\$1,091
<del>Bid Advertisement</del>	<del>0</del>	<del>1</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>1</del>	<del>2</del>	<del>\$56</del>
<del>QA/QC</del>	<del>8</del>	<del>10</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>18</del>	<del>\$733</del>
Direct Labor	51	188	236	110	0	308	9	902	\$23,260
Overhead - Percentage of Direct Labor				177%					\$41,170
Fixed Fee - Percentage of Direct Labor Plus Overhead				15%					\$9,665
<b>Subtotal - Labor, Overhead, Fixed Fee</b>									<b>\$74,095</b>



AIRPORT:  
PROJECT:  
CLIENT:  
JOB NUMBER:  
DATE:  
EXPENSES:

King County International Airport (Boeing Field)  
Runway 13L-31R Rehabilitation  
King County  
23-00-009  
7/14/00 Revised 9/18/00

Computers:

300	Hours @	\$12	per hr.	(AutoCadd)	\$3,600
100	Hours @	\$12	per hr.	(EaglePoint)	\$1,200

Travel:

Cost/Unit	Trips	Miles	
\$0.40	6	60	\$144

Misc. expenses:

Fax	\$5
Telephone	\$10
Postage	\$10
Printing - 50 sets	\$2,000
Processing Fee	\$304

Subtotal - Expenses

\$7,273

SUBCONSULTANTS:

Elcon - Electrical Engineering  
Handling Fee

ditto

\$33,699  
\$5,055

Subtotal - Subconsultants

\$38,754

TOTAL DESIGN ENGINEERING

(Lump Sum)

\$120,122

TOTAL - LUMP SUM ENGINEERING

\$152,937

AIRPORT: King County International Airport (Boeing Field)  
 PROJECT: Runway 13L-31R Rehabilitation  
 CLIENT: King County  
 JOB NUMBER: 23-00-009  
 DATE: 7/14/00 Revised 9/18/00

	PROJECT	SENIOR	DESIGN	SE	SURVE	CADD	WORD		
	PRNPAL	ENGR	ENGR	DESIGNE	TECH	OPER.	PROC.	TOTAL	PROJECT
PROJECT TASK	\$48.58	\$37.38	\$22.35	\$25.74	\$20.76	\$20.76	\$20.76	HRS	COST

# CONSTRUCTION ENGINEERING

(Based on 60 Working-Day Schedule)

## DIRECT SALARY:

Bidding Co-ord / Questions	2	8	8	4	0	0	0	22	\$678
Addenda <del>(Assume 1)</del>	1	4	8	0	0	0	2	15	\$418
Attend Bid Opening	0	4	0	0	0	0	0	4	\$150
Bid Analysis / Recommendation	0	8	8	0	0	0	0	16	\$478
FAA Grant App	1	2	8	0	0	0	2	13	\$344
Construction Contracts	0	0	4	0	0	0	8	12	\$255
Pre-Construction Conference	0	6	6	4	0	0	0	16	\$461
Field Engineering <del>Cost Inspector</del>	15	150	300	225	0	0	0	690	\$18,832
Construction Coordination	15	100	100	30	0	0	0	245	\$7,474
Prepare Daily & Weekly Reports	0	0	40	0	0	0	0	40	\$894
Pay Estimates	0	8	16	4	0	0	0	28	\$760
Conduct Final Inspection	0	6	6	0	0	0	0	12	\$358
Record Drawings	0	4	10	10	0	20	0	44	\$1,046
Project Closeout	2	30	40	10	0	0	8	90	\$2,536
Update FAA Pavement Form	0	2	2	0	0	0	0	4	\$119

Direct Labor 36 332 556 287 0 20 20 1251 \$34,803

Overhead - Percentage of Direct Labor 177% \$61,601

Fixed Fee - Percentage of Direct Labor Plus Overhead 15% \$14,461

Subtotal - Labor, Overhead, Fixed Fee \$110,865

## EXPENSES:

Computers:	60	Hours @	\$12	per hr.	\$720
Travel:	Cost/Unit	Trips	Miles	Days	
Mileage	\$0.40	50	60		\$1,200
Per Diem					\$0
Misc. expenses:					
Fax					\$5
Telephone					\$50
Postage					\$10
Printing					\$10
Microfiche					\$5
Field Supplies					\$10
Processing Fee					\$14

Subtotal - Expenses \$2,024

## SUBCONSULTANTS:

Quality Assurance Lab Testing	\$35,000
Elcon Associates, Inc.	\$12,398
Handling Fee	\$7,110

\$54,508

## TOTAL CONSTRUCTION ENGINEERING

(Time & Expense) \$167,397

## ENGINEERING GRAND TOTAL

\$320,334

engfee.xls

# CIP ROUTING SLIP

Project Name: Runway 13L-31R Rehab

Project Number: 001294

## 1.0 Design

- ☐ 1.1 Proposal/RFP
- ☐ 1.2 Consultant Agreement
  - ☐ 1.2.1 Bonds/Insurance
  - ☐ 1.2.2 Amendments
  - ☐ 1.2.3 Contract Documents
- ☐ 1.3 Invoices/Progress Payments
- ☐ 1.4 Incoming Correspondence
- ☐ 1.5 Outgoing Correspondence
- ☒ 1.6 Record of Conversations (Phone/E-Mail)
- ☐ 1.7 Technical Reports
- ☐ 1.8 Drawings

## 2.0 Construction

- ☐ 2.1 Proposal/RFP
- ☐ 2.2 Contract
  - ☐ 2.2.1 Change Orders
  - ☐ 2.2.2 Contract Documents/Drawings
  - ☐ 2.2.3 Bonds/Insurance Certificates
  - ☐ 2.2.4 Permits/Licenses
- ☐ 2.3 Invoices/Progress Payment
- ☐ 2.4 Incoming Correspondence
- ☐ 2.5 Outgoing Correspondence
- ☐ 2.6 Record of Conversations (Phone/Email)
- ☐ 2.7 Quality Control/Technical Reports
- ☐ 2.8 Schedules
- ☐ 2.9 Record Documents (As-Built)
  - ☐ 2.9.A O&M Manuals
  - ☐ 2.9.B Photos
  - ☐ 2.9.C Certified Payrolls/State Prevailing Wage Name: \_\_\_\_\_
  - ☐ 2.9.D Field Notes
  - ☐ 2.9.E Submittal No. \_\_\_\_\_

## 3.0 Outside Agencies

- ☐ 3.1 Incoming Correspondence
- ☐ 3.2 Outgoing Correspondence
- ☐ 3.3 Record of Conversations (Phone/Email)
- ☐ 3.4 Internal Correspondence
- ☐ 3.5 Quality Control Reports
- ☐ 3.6 Technical Reports
- ☐ 3.7 External Funding Reports

## 4.0 County Force Design

- ☐ 4.1 Proposal/RFP/Scope of Work
- ☐ 4.2 Work Authorization/Blanket Agreement
- ☐ 4.3 Internal Correspondence
- ☐ 4.4 Record of Conversations (Phone/Email)
- ☐ 4.5 Technical Reports

## 5.0 County Force Administration

- ☐ 5.1 Internal Correspondence
- ☐ 5.2 Record of Conversations (Phone/Email)
- ☐ 5.3 Project Closeout
- ☐ 5.4 Field Notes (Misc)

Requested By & Date

Filed By & Date

# CIP ROUTING SLIP PLANNING

Project Name: \_\_\_\_\_

Project Number: \_\_\_\_\_

## 6.0 Planning

- \_\_\_\_\_ 6.1 Project Scoping and Goals
- \_\_\_\_\_ 6.2 Project Budget
- \_\_\_\_\_ 6.3 Consultant Services
- \_\_\_\_\_ 6.4 Proposal/RFP
- \_\_\_\_\_ 6.5 Studies/Plans
  - \_\_\_\_\_ 6.5.1 Feasibility
  - \_\_\_\_\_ 6.5.2 Pre-Design
  - \_\_\_\_\_ 6.5.3 30 Percent Design
- \_\_\_\_\_ 6.6 Coordination
  - \_\_\_\_\_ 6.6.1 Department
  - \_\_\_\_\_ 6.6.2 Agencies/Jurisdictions
  - \_\_\_\_\_ 6.6.3 Community
- \_\_\_\_\_ 6.7 Correspondence
- \_\_\_\_\_ 6.8 Technical Reports/Maps
- \_\_\_\_\_ 6.9 Plans